

Patent Claims

1. Suspended control device (20), which is suspended via a control line (1) from a unit (21) being controlled, especially a control switch or suspended pushbutton switch for controlling a hoisting machine, wherein the control line (1) comprises electrical lines (2) for transmission of control signals and a traction relief (22), which is supported at the top on the unit (21) in order to absorb gravity and traction forces, characterized in that a storage for the electrical lines (2) in order to take up and pay out a predetermined line length is located behind the support of the traction relief, looking from the suspended control device (20) toward the unit (21).
2. Suspended control device (20) per Claim 1, characterized in that the traction relief (22) is formed from a flat foldable hose (6) in the manner of a textile hose and the electrical lines (2) run through the inside of the hose and the hose (6) can be folded and stored along with the electrical lines (2) in the storage.
3. Suspended control device (20) per Claim 2, characterized in that the hose (6) is filled with an elastic material in the gripping region (11) of the operator.
4. Suspended control device (20) per Claim 3, characterized in that the elastic material forms a lengthwise slit hollow cylinder (12), through whose cavity the electrical lines (2) travel.
5. Suspended control device (20) per Claim 1, characterized in that the hose (6) is led through a hollow cylinder (12) made from an elastic material in the gripping region (11) of the operator.
6. Suspended control device (20) per one of Claims 3-5, characterized in that the elastic material is formed from a foam plastic.
7. Suspended control device (20) per one of Claims 2-6, characterized in that the supporting of the hose (6) on the unit (21) is done by a support device (7), which uniformly distributes the gravity and traction forces about the periphery of the hose.
8. Suspended control device (20) per Claim 7, characterized in that the support device (7) is formed from a truncated cone (8) arranged inside the hose (6) with a continuous opening (16) for the electrical lines (2) and a funnel (9) arranged outside the hose (6) and supported on the unit (21),

corresponding to the shape of the truncated cone, wherein the truncated cone (8) is pulled by the gravity and traction forces into the funnel (9) and thus axially secures the hose (6) on the unit (21).

9. Suspended control device (20) per Claim 8, characterized in that at least one part of the funnel (9) is part of the unit (21).
10. Suspended control device (20) per Claim 8 or 9, characterized in that the truncated cone (8) and the funnel (9) are each lengthwise divided and formed from two mating halves.
11. Suspended control device (20) per one of Claims 7-10, characterized in that the support device (7) has an element (10) by which the truncated cone (8) can be pushed upward from the outside in order to release the axial fixation of the hose (6), for which the element (10) is provided with inwardly directed lugs (15), engaging with the truncated cone (8).
12. Suspended control device (20) per Claim 11, characterized in that the movable element (10) is guided lengthwise through the funnel (9).
13. Suspended control device (20) per one of Claims 8-10, characterized in that the downward displacement of the truncated cone (8) is limited by the funnel (9) and the upward displacement by a lug (15) on the funnel (9).
14. Suspended control device (20), suspended via a control line (24) from a unit (21) being controlled, especially a control switch or suspended pushbutton switch for controlling a hoisting machine, wherein the control line (24) comprises electrical lines (2) for transmission of control signals and a traction relief (22), which is supported on top at the unit (21) in order to absorb gravity and traction forces, characterized in that a storage for the electrical lines (2) in order to take up and pay out a predetermined line length is located between the suspended control device (20) and the unit (21), being formed in that the cablelike traction relief (22) and the electrical lines (2) are led down from the unit (21), back up again at least at one lower turnaround point (22a) and once again down via a turnaround element (22b) to the suspended control device (20) and connected to it, and the cablelike traction relief (22) and the electrical lines (2) are clamped together at the lower turnaround point (22b) by means of a detachable clamp (23).
15. Suspended control device (20) per Claim 14, characterized in that the cablelike traction relief (22) and the electrical lines (2) are formed as a

common flat cable, in which the cablelike traction reliefs (22) in the form of steel ropes travel at both sides.

16. Suspended control device (20) per one of Claims 14-15, characterized in that a deflection roller (26) operating under gravity is fashioned at the lower turnaround point (22a) and the turnaround element (22b) is likewise a deflection roller (26).
17. Suspended control device (20) per Claim 16, characterized in that the flat cable end connected to the suspended control device (20) can be clamped to the weight element (25) producing the gravity.
18. Suspended control device (20) per Claim 17, characterized in that the flat cable end is led through a continuous opening (16) provided in the weight element (25) and can be fixed in it.
19. Suspended control device (20), suspended via a control line (24) from a unit (21) being controlled, especially a control switch or suspended pushbutton switch for controlling a hoisting machine, wherein the control line (24) comprises electrical lines (2) for transmission of control signals and a traction relief (22), which is supported on top at the unit (21) in order to absorb gravity and traction forces, characterized in that the cablelike traction relief (22) and the electrical lines (2) are fashioned as a common cable, which is detachably fastened to a support element (28) arranged at the unit (21) in that the support element (28) has two neighboring continuous openings (16) with a land element between them, around which the cable traveling through the two continuous openings (16) is led for self-clamping fixation.
20. Suspended control device (20) per Claim 19, characterized in that the support element (28) is platelike.
21. Suspended control device (20), suspended via a control line (24) from a unit (21) being controlled, especially a control switch or suspended pushbutton switch for controlling a hoisting machine, wherein the control line (24) comprises electrical lines (2) for transmission of control signals and a traction relief (22), which is supported on top at the unit (21) in order to absorb gravity and traction forces, characterized in that a storage for the electrical lines (2) for taking up and paying out a predetermined line length is located between the suspended control device (20) and the unit (21), formed in that the electrical lines (2) are led on the inside of an essentially vertical tube (29), fastened to the unit (21), having a telescopic extending inner tube (30), to which the suspended control device (20) is fastened, and the two flexible tubes (29, 30) are formed from plastic.

22. Suspended control device (20) per Claim 21, characterized in that the electrical lines (2) have a spiral shape.
23. Suspended control device (20) per one of Claims 21-22, characterized in that the inner tube (30) is provided with undercuts (31), which can be engaged by hook elements (32) which can pivot and are arranged on the outside of the tube (29) for axial fixation, or conversely the hook elements (32) are arranged on the inner tube (30) and the undercuts (31) on the tube (29).
24. Suspended control device (20) per one of Claims 21-23, characterized in that the traction relief (22) is formed by a steel rope.
25. Suspended control device (20) per one of Claims 21-24, characterized in that the electrical lines (2) are wound about a carrier element (33) in the manner of a winding frame.
26. Suspended control device (20), suspended via a control line (24) from a unit (21) being controlled, especially a control switch or suspended pushbutton switch for controlling a hoisting machine, wherein the control line (24) comprises electrical lines (2) for transmission of control signals and a traction relief (22), which is supported on top at the unit (21) in order to absorb gravity and traction forces, characterized in that the cablelike traction relief (22) and the electrical lines (2) are fashioned as a common flat cable, a storage for the cable to take up and pay out a predetermined line length is located between the suspended control device (20) and the unit (21), formed in that the cable is wound about a carrier element (33) in the manner of a winding frame.
27. Suspended control device (20) per Claim 20, characterized in that the carrier element (33) is formed as a cable clamp (34) in the manner of a film joint.